NOTES 15: MORE ON TESTING

Stat 120 | Fall 2025
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1 Types of Errors

	H_0 True	H_0 False
Reject H_0		
Do not reject H_0		

Type I Error

Type II Error

α

β

Power

Example: A public health researcher believes that there is a positive relationship between heart rate and age among ICU patients. Data from 23 patients gives $r = 0.037$. Do you think the probability of a Type II error is higher if $\rho = .9$ or $\rho = .1$?

$H_0 : \rho = 0$

$H_A : \rho > 0$

Big Picture Picture
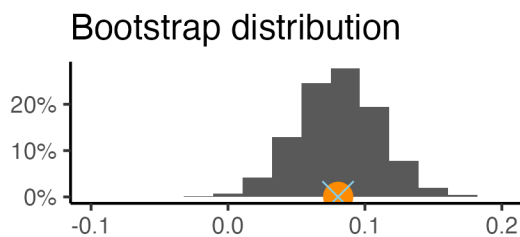
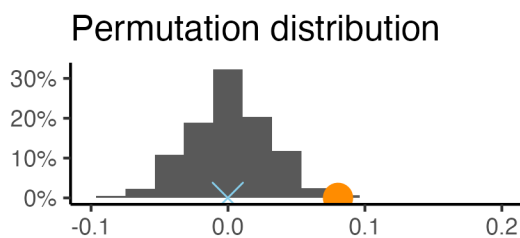Sampling Distribution   Bootstrap Distribution   Null Distribution

2 Connection to Confidence Intervals

If the value of H_0 is outside of the confidence interval, we _____.

If the value of H_0 is inside the confidence interval, we _____.

Illustration: (Social Media Poll Example)

Permutation distribution

Bootstrap distribution

3 Statistical vs Practical Significance